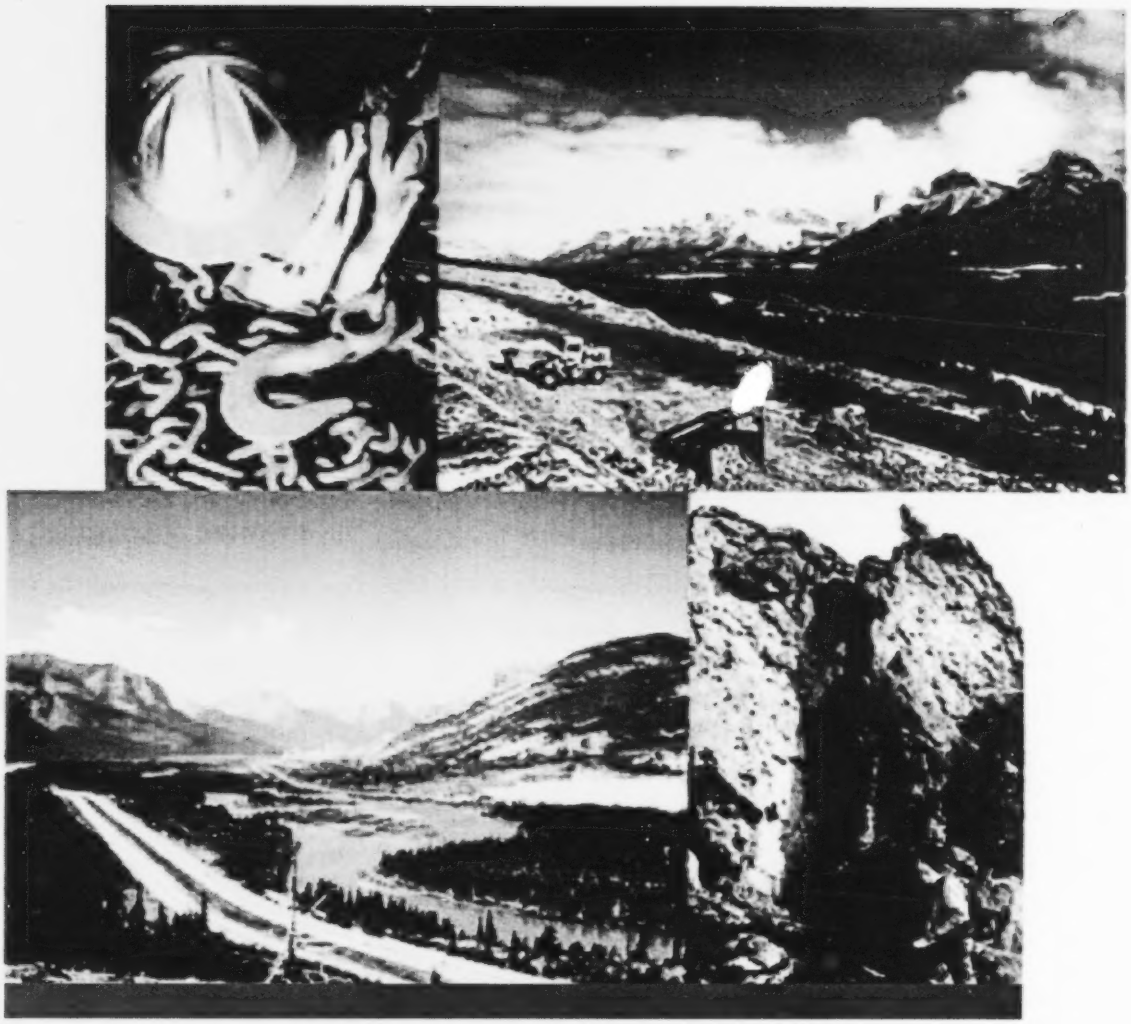

ALBERTA MINERAL DEVELOPMENT STRATEGY 2002

Alberta
ENERGY

104-02443/

Alberta's Mineral Development Strategy 2002

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: Introduction :

For many years, Alberta has extensively developed its energy minerals. However, it is believed that the province also possesses a wide range of other minerals: base and precious metals, gemstones and industrial minerals. To enhance the economic benefit of these resources for all Albertans, Alberta's Throne Speech for 1999/2000 committed the Government to:

- develop a policy on non-energy minerals;
- streamline the administration of mining regulations;
- improve geological information on minerals.

The Alberta Ministry of Energy assembled a team from across government to establish the strategies for meeting these commitments. The result is a framework that outlines the vision, goals and strategic directions for ensuring orderly, environmentally responsible mineral exploration and development in Alberta. This framework will be implemented through government business plans.

Communication and discussions with representatives of government, the minerals industry, Aboriginal communities, environmental associations and others, were important in establishing this framework. Further development and implementation of the strategies will require continued consultation.

: Vision :

Alberta manages its abundant and diverse mineral resources to provide full opportunity for industry to explore and develop these resources for the greatest benefit of all Albertans while ensuring commitment to sustainable development.

: Goals :

As the steward of Alberta's mineral resources, the government will provide fair opportunity for private enterprise to develop these mineral resources in a manner that creates jobs, wealth and a fair return for Albertans, while protecting Alberta's valuable resources: people, wildlife, air, water and land.

An over-arching principle for this strategy is to ensure sustainable development and to maintain Alberta's commitment to the environment.

The goals of this mineral strategy are to:

1. implement a comprehensive Geoscience Knowledge Initiative;
2. establish a regulatory, environmental and fiscal framework for exploration and development that is effective, efficient and fair;
3. implement innovative communication, consultation and community development processes;
4. ensure that Alberta's infrastructure supports and facilitates responsible development of the mineral industry.

: Summary of Action Plans :

The Vision:

"Alberta manages its abundant and diverse mineral resources to provide full opportunity for industry to explore and develop these resources for the greatest benefit of all Albertans while ensuring commitment to sustainable development."

Goal 1-Geoscience Knowledge Initiative

1. To develop a comprehensive Geoscience Knowledge Initiative needed by government, industry and the public for earth resources stewardship and sustainable development. Strategic partnerships (such as the Cooperative Mapping Strategies) and establishment of adequate base level funding will ensure attainment of acceptable levels of basic geological mapping, geoscience information and expertise.

Goal 2-Regulatory, Environmental and Fiscal Framework

Land Access

2. To design policies and guidelines for resource developers within an integrated land management framework.

Mineral Tenure

3. To ensure mineral tenure policies remain appropriate for resource exploration and development.

Regulatory Processes, including Environmental Approvals

4. Develop an improved regulatory process that is appropriate to the mineral industry.

5. Communicate legislation and develop guidelines for exploration and mine development.

6. Continue to pursue harmonization initiatives with all levels of government and local communities.

7. To work with stakeholders in order to develop the recommendations leading to improvements in mining regulation as it relates to non-energy minerals, including processes that address environmental protection and health and safety issues for mine development in Alberta.

8. Communicate the environmental regulatory process and develop clear, concise guidelines for mineral development.

Taxes and Royalties

9. To ensure Alberta's fiscal regimes are fair, competitive, stable and predictable.

Goal 3-Communication, Consultation, Community Development

10. To act on opportunities to attract investment, create jobs and encourage economic diversification through mineral resource development.

11. To identify and encourage good neighbor policies and value-added opportunities through strategic partnerships between governments, Aboriginal and local communities, educational institutions and industry.

Goal 4-Industry Development

12. To work with industry, education institutions and communities to identify opportunities for development of infrastructure that would facilitate mineral industry development.

13. To work with industry to facilitate economic opportunities for the co-production of non-energy minerals found in oil sands deposits.

14. To work with the Alberta Sand and Gravel Association to establish a process to identify and address issues specific to sand, gravel and aggregate resource management on Public Lands.

15. To work with industry and education institutions to identify opportunities for research that would facilitate mineral industry development.

: Potential For Mineral Development In Alberta :

Alberta's energy minerals - oil, oil sands, natural gas and coal - have been extensively mapped, explored and developed. In contrast, little is known about the potential for other mineral development (base and precious metals, gemstones and industrial minerals). This is largely due to lack of mapping at the level where these minerals are generally found. The Alberta Chamber of Resources (ACR) has long been a leader in promoting development of the Province's natural resources and in its 1998 publication stated that more than 40 minerals of commercial potential are known to occur.[1]

Definition

While there are various classifications of non-energy minerals, this strategy uses the following system:

- base metals e.g. copper, zinc and uranium[2];
- precious metals e.g. gold and platinum;
- gemstones e.g. diamonds
- industrial minerals
  a) building materials e.g. limestone and sandstone;
  b) minerals for chemical or other industrial use e.g. barite, lime and salt.

"more than 40 minerals of commercial potential are known to occur[1]"

Sand and gravel are important industrial mineral commodities for all Albertans, however, they have a number of unique aspects relative to other minerals. As such, a separate process should be considered to develop a strategy specific to the sand and gravel industry.

Current Mineral Production

In 2001, Alberta's non-energy mineral production came primarily from industrial minerals, including sand and gravel (production value of $206 million[3]), cement ($200 million), salt ($20 million), silica ($8 million) and stone ($5 million). There was a small amount ($258 thousand) of gold production reported in 2001, as a by-product of sand and gravel operations.

Geological Potential

Exploration begins with the belief that minerals will be found. Estimates of geological potential are based on assessments of the currently available geological and geoscience information.

Layers of sedimentary rock underlie much of Alberta. However, tectonic features - faults, arches and synclines - and intrusions in this sedimentary basin provide the conditions in which many minerals may be found. In addition, northeastern Alberta contains an area of approximately 15,000 square kilometres of the Canadian Shield, where Precambrian rock outcrops occur. This area provides an environment for possible deposits of copper, zinc, gold, lead and silver.

Minerals are known to occur throughout the province, thus Alberta is considered to have geological potential. However, it is uncertain at this point if these mineral deposits have commercial potential.

Figure 1 on page 9 is a simplified illustration of an Alberta mineral map that shows areas that may have mineral potential. The figure provides a general overview of deposit indicators without considerations of development or land access restrictions. Mineral indicators shown in the map include:

- diamonds - Alberta has had diamond discoveries. A total of 46 kimberlites, the host rock of most high quality gem diamonds in the world, had been discovered in Alberta to the end of 2002. Geological indicators suggest that further finds of diamondiferous kimberlite pipes will occur;

[1] Source: Alberta Chamber of Resources, Alberta Minerals - Fostering a Vibrant Resource, 1998

[2] Uranium has been included although normally considered an energy mineral

[3] Source: Natural Resources Canada, Mineral Production by Province, 2001 Preliminary Estimates. Does not include sand and gravel material shipments to cement, lime and clay plants

- lead, zinc and nickel - these have been found along the foothills in western Alberta and in northern Alberta, close to similar deposits in the Northwest Territories;
- gold - placer gold mining occurs in Alberta and there is potential for new placer operations. Gold is also associated with other metal deposits;
- titanium, zirconium and vanadium - these metals have been found in the oil sands and there is potential for commercial extraction;
- iron - deposits have been found in northwestern and southwestern Alberta with some potential for development;
- uranium - this mineral is found in northeastern Alberta as an extension of deposits found in Saskatchewan.

Potential for Commercial Production

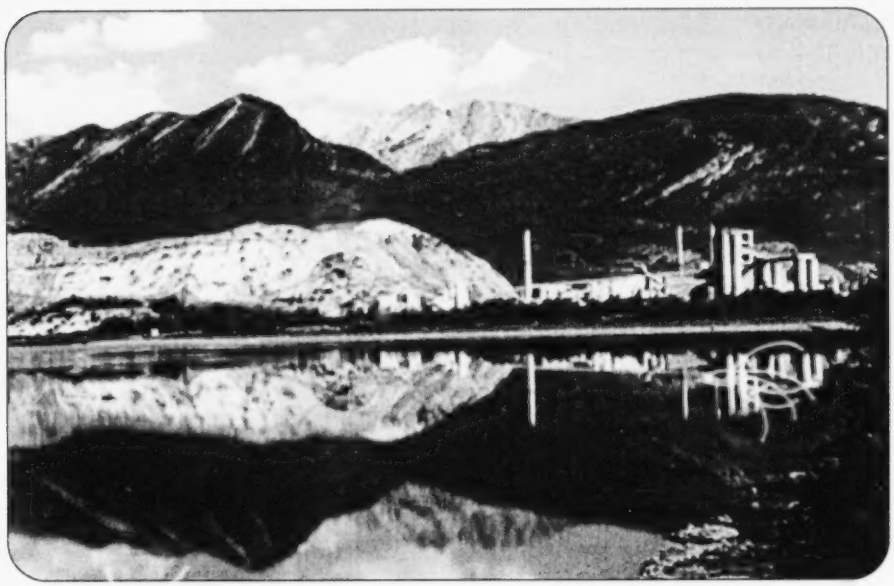
The mining industry is global in nature with a great number of mineral resources identified around the world. To be developed, these resources have to be deemed "economic" in a competitive, global context. Companies wishing to develop a mineral property ask: Is there a ready, stable market for these resources and are the resources of sufficient grade, quality, quantity and deliverability to provide a sufficient return on investment?

Although finding a mineral deposit is a necessary condition of development, it is not in itself a guarantee that a mine will be developed. For example, on a global scale, less than 1% of kimberlite pipes discovered to date have been sufficiently diamondiferous to be economic. Fewer than 50 kimberlite pipes in the world are commercially economic in the current market and of these, only 15 are major producers.

It is the commercial potential measured on the global market that will convince mining companies to invest their expertise and financial resources in Alberta.

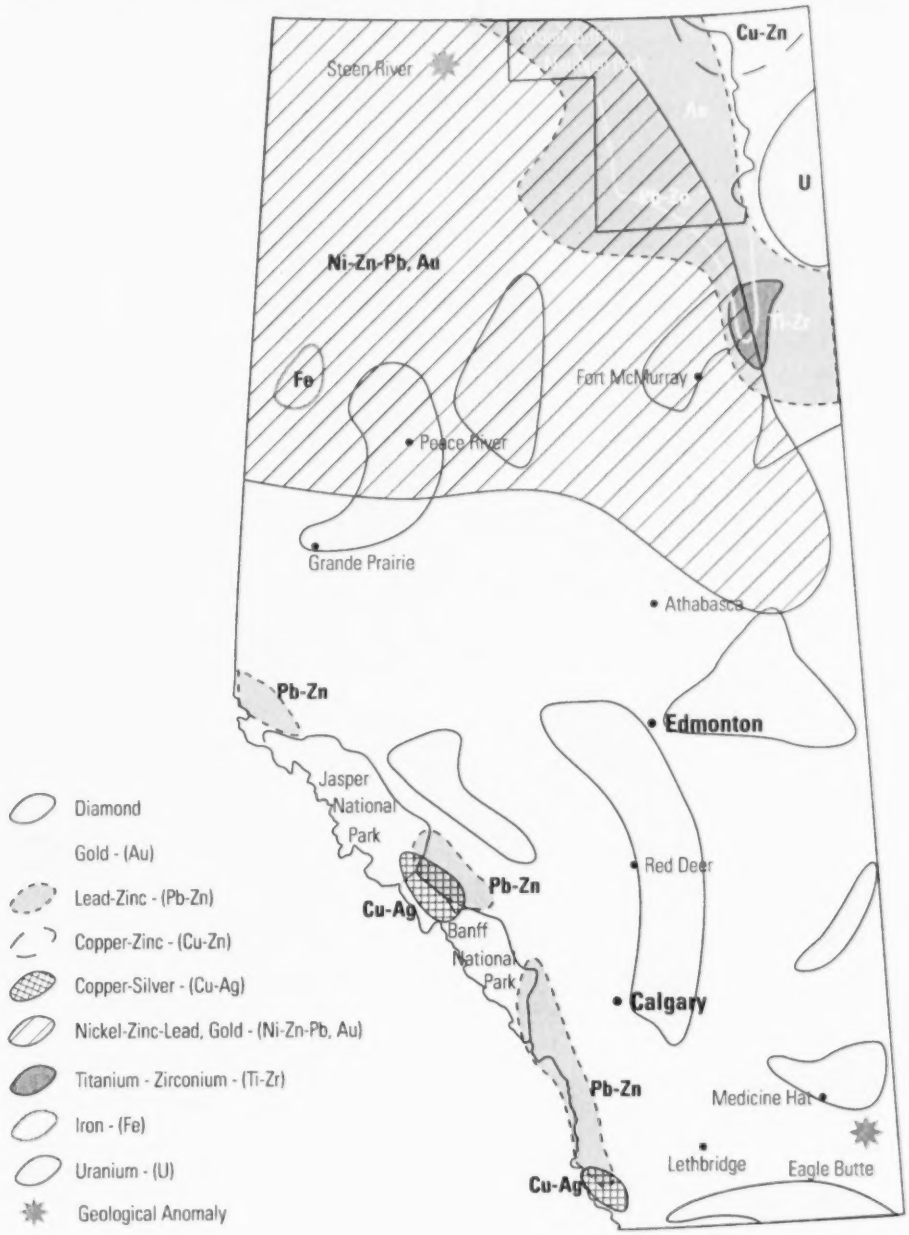
The Mining Industry

For Albertans, it is important to recognize that the mineral industry is not like the oil and gas industry, and the metallic industry is not like the industrial minerals industry. In addition, exploration programs and mine development are significantly different activities. Companies involved in exploration tend to be small, risk-oriented, flexible in structure and approach, and have a low capitalization requirement. Mine development requires larger companies with significant resources and a longer period for return on capital.



: Figure 1 - Diamond and Metallic Mineral Potential :

Illustration of Alberta's "Non-Energy" Minerals Map



: Figure 2 - Overview of the Mineral Development Process :

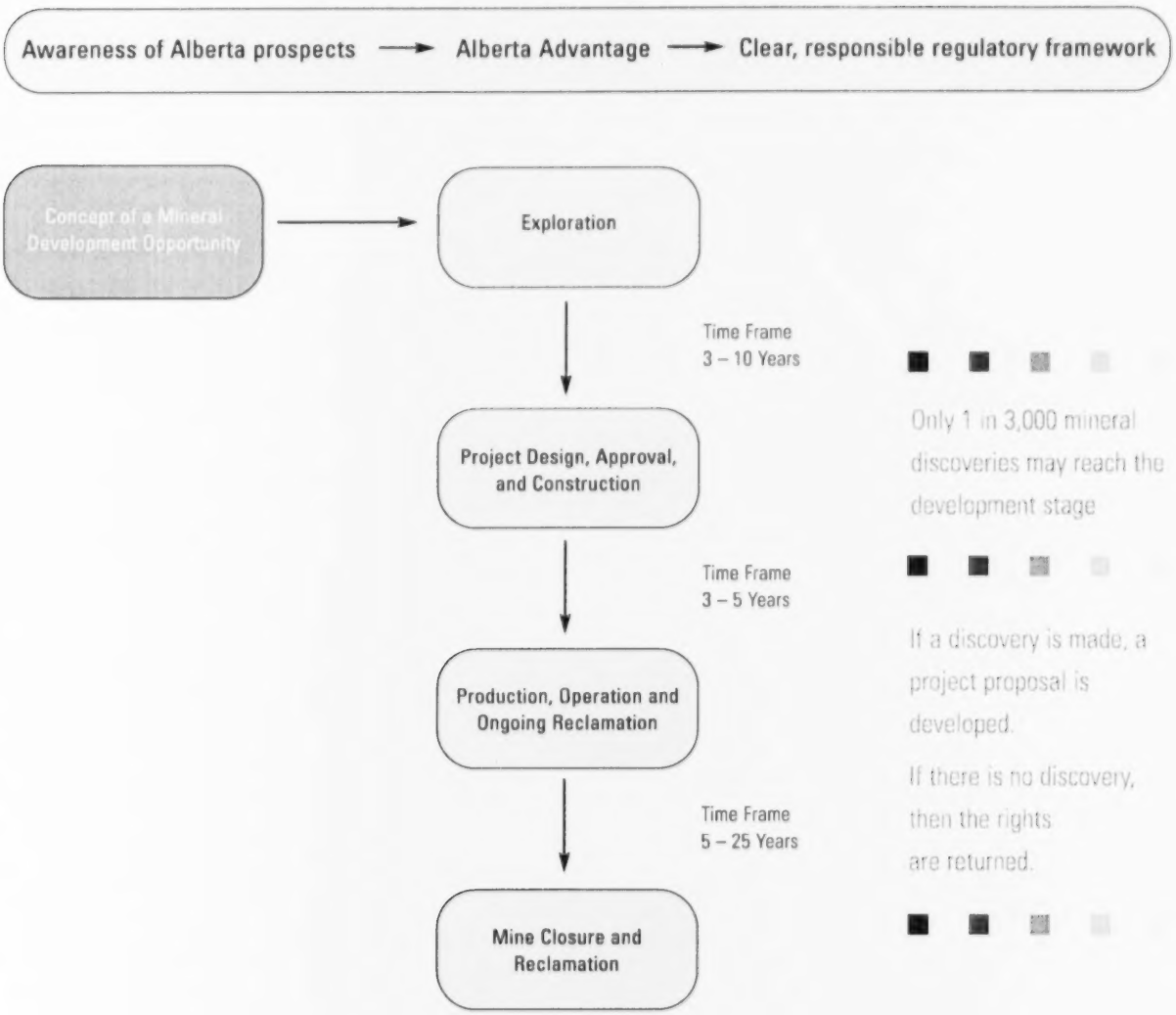

Awareness of Alberta prospects
Alberta Advantage
Clear, responsible regulatory framework
Concept of a Mineral Development Opportunity
Exploration
Time Frame
3 – 10 Years
Project Design, Approval, and Construction
Time Frame
3 – 5 Years
Production, Operation and Ongoing Reclamation
Time Frame
5 – 25 Years
Mine Closure and Reclamation
Only 1 in 3,000 mineral discoveries may reach the development stage
If a discovery is made, a project proposal is developed.
If there is no discovery, then the rights are returned.

Figure 2 illustrates the basic steps involved in a full cycle mineral project, from the initial concept to the mine closure and reclamation. Time frames will depend on the size and nature of the deposit. Furthermore, Canadian experience has shown that mineral rights may be acquired and explored numerous times before an actual discovery is made.

Mineral exploration and the number of companies operating in Alberta increased significantly in recent years, with diamond exploration as the primary focus. However, the current level of investment in Alberta by exploration and mining companies is considered well below potential compared with the rest of Canada (less than 1% of the total Canadian investment in mineral exploration in 2001.)

: Strategic Directions :

The potential in Alberta's metals, gems and industrial minerals can be unlocked through proactive action by industry, government and communities. Alberta's people, dynamic economy and abundant and diverse natural resources and protected environment are all part of the "Alberta Advantage".

To promote Alberta's geological and business potential, a working partnership between industry, government and communities needs to be established to take advantage of the various opportunities to further Alberta's economic and environmental goals. Most important, each of these has a responsibility for ensuring that development takes place in a manner that meets the objectives set out in Alberta's Commitment to Sustainable Resource and Environmental Management.

This strategic framework focuses on attracting increased exploration, while laying the groundwork for responsible mine development in the longer term.

For the four major goals on page 3, the strategy outlines the essential elements and strategic directions that must be addressed. These elements are the result of our discussions with representatives of industry, Aboriginal communities and environmental associations, as well as within government.

The strategic directions described for these four goals will be incorporated into action plans for the Alberta Government's business plans for 2002/2003 and beyond.

Geological and geoscience information is essential in promoting understanding of the underlying geology, resource potential and its value. Governments, as stewards of these resources, have an essential role in providing this "common good".

: Goal 1 – Geoscience Knowledge Initiative :

Providing geological information is an important government initiative. It benefits governments by facilitating better resource management, especially within an integrated landscape model. Sharing common information among all users increases efficiency, and reduces the cost and risk for resource industries in their exploration efforts.

96% of Alberta is not adequately mapped. Geological and geoscience information is essential in promoting understanding of the underlying geology, resource potential and its value. Governments, as stewards of these resources, have an essential role in providing this "common good"

Alberta's geology is virtually unmapped at the level of detail needed by mineral exploration companies. Recent work done by the federal/provincial committee on geoscience has estimated that only 4% of Alberta meets the "fully adequate" criteria for mapping, as shown in Table 1.

The question of how much funding is enough for geoscience activities is frequently asked. Quantifying the value of these activities is also very difficult. However, the following statement was included in a report to the Minister's National Advisory Board on Earth Sciences in October 1999:

"Every $1 million of government investment to enhance the geoscience knowledge base will likely stimulate $5 million of private sector exploration expenditures which, in turn, will result in discovery of new resources with an in-situ value of $125 million (within a certain probability)." [4]

Table 1 - Comparison of Mapping Levels

Map Type	Scale	Approximate Number of Maps		Percent Inadequate	
		Alberta	Canada	Alberta	Canada
Bedrock Geology	1:250,000	47	1,000	96%	35%
	1:50,000	760	14,150	97%	Varies
Surficial Geology	1:250,000	47	1,000	94%	31%
	1:50,000	760	14,150	98%	78%
Geochemistry Lake/Stream Water/Sediment	1:250,000	47	1,000	98%	69%
Geochemistry Tills	1:250,000	47	1,000	98%	69%
Aeromagnetic Surveys	1:250,000	47	1,000	35%	35%
	1:50,000	760	14,150	High	Varies
Radiometric Survey	1:250,000	47	1,000	98%	80%

Table 2 - Comparison of Mapping Expenditures – 1999-2000

	B.C.	Alta.	Sask.	N.W.T.	Ont.	Que.
Survey Expenditures ($ Millions)	$6.4	$4.6*	$2.5	$2.3	$13.5	$12.8
Survey $ per capita	$1.73	$1.55	$2.48	$37.04	$1.25	$1.79
As a percentage of Mineral Production	0.14	0.0017**	0.11	0.41	0.20	0.49
Survey $ per sq. km	$6.81	$3.83	$3.76	$0.70	$12.59	$8.27

* In 2000-2001, the province invested an additional $1.5 million for minerals related geological work. Alberta's expenditures of $4.6 million were focused primarily (55%) on energy-related geology, whereas other provinces focused their spending on non-energy minerals.

** Includes energy minerals (oil, natural gas and oil sands).

Alberta has never had significant investment in geological mapping for metallic and industrial minerals. Alberta did some initial mapping through the $8.4 million Mineral Development Agreement with the federal government from 1992 to 1995. This saw a substantial increase in exploration. However, recent spending for mapping programs in Alberta remains relatively low compared to other Canadian provinces (Table 2).

To achieve full coverage in all categories listed in Table 1, Alberta would need to map 600 sheets. However, not all map sheets are of equal priority and each map does not need all categories to the same extent. By setting priorities and making judicious choices, the task could be reduced to about 200 map sheets. The useful life of a geological map is about 20 years, at which time new information should be incorporated. Assuming 200 map sheets are covered in 20 years, an estimated annual investment of $10 million would be required over that period.

Achieving a funding investment of $10 million per year would require significant additional commitment from the provincial government. At the 2000 Mines Ministers Conference, the Ministers approved, in principle, a "Co-operative Mapping Strategies" and directed government officials to work on developing funding proposals and implementation plans over the next year. A partnership between Alberta and the federal government could provide the best mechanism for funding mapping priorities. In 1999, a Memorandum of Agreement (MOA) between Natural Resources Canada and the Alberta Energy and Utilities Board on "Government Geoscience Program Coordination in Alberta" was signed. Through this MOU cooperative mapping can be delivered through the Geological Survey of Canada and the Alberta Geological Survey.

The Province of Alberta has already committed an additional $0.75 million in funding (1999-2000) and ongoing funding of $1.5 million per year (starting in 2000-2001) to the Alberta Geological Survey (AGS) to increase geologic mapping and geoscience studies. The expanded minerals program has already begun to deliver maps, reports and databases to the mineral and energy industries on topics such as:

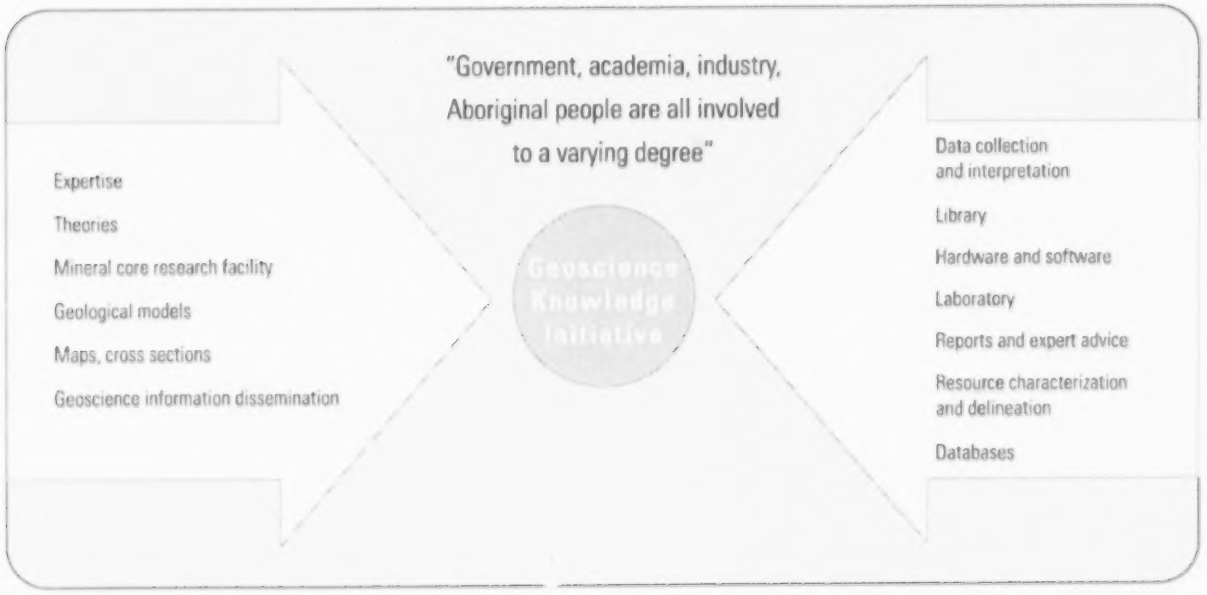
- basic studies - bedrock and surficial geology mapping;
- thematic studies - tectonic and basement structure analysis;
- detailed economic studies, such as the structural setting and surficial geochemical responses over Alberta kimberlites.

Specific activities and reports have been proposed for the next three years. In addition, a survey of the mineral community was conducted in 2000 to assist in identifying priorities. A comprehensive geoscience program, as depicted in Figure 3, will incorporate the expanded minerals program and will be developed in co-ordination with other government departments, industry and public education institutions. Delivery of the program will also involve the private sector.

Some other benefits or considerations for further discussion include:

- the development of "Hot Links" between the AGS and other government websites to connect geoscience information with related exploration and minerals legislation;
- usage of the geoscience program to inventory the value of Alberta's mineral resource assets and to aid in integrated landscape management and the protected areas decision-making process;

: Figure 3 – Geoscience Knowledge Infrastructure :



- considering biological mapping and Traditional Use Studies in concert with geological mapping;
- considering the opportunities for study and research of Alberta's inventory of oil and gas core for indicators of other minerals, perhaps through university programs.

The oil and gas map of the 1940's looked much like our mineral map of the 1990's. Our objective is to develop a minerals map with the same level of detail as we have today for our energy minerals, in much less than 50 years.

Strategic Directions

1. To develop a comprehensive Geoscience Knowledge Initiative needed by government, industry and the public for earth resources stewardship and sustainable development. Strategic partnerships (such as the Cooperative Mapping Strategies) and establishment of adequate base level funding will ensure attainment of acceptable levels of basic geological mapping, geoscience information and expertise.

: Goal 2 – Regulatory, Environmental and Fiscal Framework :

An important role for government is to establish the framework under which the industry conducts its business operations. For the minerals industry, this framework consists of policies, planning processes, regulations and approvals to manage exploration and mine development, and to integrate these with other resource management goals. Regulatory requirements should be clear, concise and minimize barriers to industry in conducting its business operations, while providing for sustainable resource and environmental management. The Mineral Strategy focuses on the following elements important to the business climate for this resource industry:

- land access;
- mineral tenure;
- regulatory review processes, including environmental approvals;
- fiscal regime.

Land Access

Mineral exploration requires access to a large land base since extensive areas must be investigated to find commercial properties. Canadian experience suggests that only one prospect in thousands of exploration programs might result in a mine development. Industry needs general access to explore and, if a discovery is made, to proceed with the development of the resource within an integrated resource management framework. Land access is an important issue for industry and government if it is to foster a vibrant exploration sector. Notwithstanding this, the mineral industry is only one of the many land users that government must consider on an integrated land management basis.

Alberta recognizes that some lands must be protected in their natural state or in a state with limited industrial activity. Access to Crown lands outside designated areas or protected areas must be available within a framework of integrated land and resource use policies. In addition, these policies need to be applied consistently throughout the province, taking into account the various other uses to which provincial lands are put.

It is also important to clarify and address Aboriginal issues that affect surface access. Before exploration begins, consultation processes must ensure that remote communities are aware of, and understand the potential land use activities that might occur in their neighbourhoods. Industry and communities need to work together to identify and obtain mutual benefits from opportunities that arise from mineral development activity, such as using local businesses and hiring of local workers.

Achieving these objectives means industry can be given some degree of predictability with respect to policy and land use restrictions. In addition, any proposed changes to policy or land access must include full consideration of the interests of the mineral industry and the legal commitments the government has made to individual lessees.

Strategic Directions

2. To design policies and guidelines for resource developers within an integrated land management framework.

Mineral Tenure

Alberta issues mineral rights for most non-energy minerals under the *Metallic and Industrial Minerals Regulation of the Mines and Minerals Act*, administered by Alberta Energy. Alberta does not use the traditional physical claim-staking and free entry system that some other provinces and territories have retained. Rather, the province uses a map staking system, where mineral rights are applied for and granted under ministerial discretion. In certain circumstances, the rights may be posted and bids taken.

The Regulation provides for two types of agreements: permits (for exploration) and leases (for development). The objective of the mineral tenure system is to make mineral rights available to individuals and companies that want to explore for and develop minerals. To ensure that the agreement holder is actively working at discovering, evaluating or developing minerals on their agreement, the permits have work expenditure commitments, which escalate during the term. The work performed by the permit holder must be filed as an assessment report, which becomes public after one year of confidentiality.

Some concerns and suggestions raised by discussion groups about the current mineral tenure system are:

- specific rights conveyed by an exploration permit are an important factor to the industry in attracting investors and raising capital for exploration programs. The province should embed the mineral right into the exploration permit;
- a greater level of assurance in security of tenure is required so if the exploration program is successful the company retains the option of developing the property;

The government has the role of reviewing the regulatory framework to ensure that it is consistent with the business environment as well as the mineral strategies' goals. Communication and consultation with stakeholders is the mechanism for identifying and prioritizing policies and legislation.

"Alberta, a member of the global community, is a leader in sustainable development, ensuring a healthy environment, a healthy economy, and a high quality of life in the present and future."

Strategic Directions

3. To ensure mineral tenure policies remain appropriate for resource exploration and development.

Regulatory Processes, including Environmental Approvals

Alberta's Approach

Alberta's Commitment to Sustainable Resource and Environmental Management provides a sustainable approach to environmental and natural resource management that seeks to ensure that environmental health and economic prosperity continue. To meet this commitment, we must have: a shared vision; provincial direction; effective decision-making; and an up-to-date legislative/regulatory regime.

A Shared Vision

As outlined in *Alberta's Commitment*, a vision of Alberta's sustainable development future was first articulated by Alberta's Round Table on the Economy and the Environment. The statement was adopted by a unanimous resolution of the Legislature in 1992. The vision is set out below:

Alberta, a member of the global community, is a leader in sustainable development, ensuring a healthy environment, a healthy economy, and a high quality of life in the present and future.

Provincial Direction

The use of Alberta's natural resources will be sustainable. This means that non-renewable resources will be managed to maximize benefits to Albertans while renewable resources will be managed to ensure their long-term viability and future use potential. Alberta's environment will be protected and resources will be managed on an integrated basis. This means that resource management will recognize that the use of one resource can

affect other users and other resources, and both economic and environmental impacts must be considered in any decisions. The management of Alberta's resources will support and promote the Alberta economy, as well as provide for multiple benefits. This will ensure access to natural resources to obtain their optimum value and a fair return for Albertans.

Effective Decision-Making

Sound resource and environmental management requires effective decisions. Effective decision-making requires sound direction on the development of resource and environmental management policies at a provincial level. It also requires a clear and understandable process that ensures decisions are fair, informed, taken at the right level, and made in a timely way.

Decisions must be responsive and provide for early resolution of conflicts. A key element of effective decision-making is public consultation on resource and environmental management decisions. This includes ensuring decisions are taken in a provincial context, considering broad public interest, and involve input from those communities and industries most directly affected by them.

Up-to-date Legislative and Regulatory Regime

Sustainable development is best achieved when the rules and roles of key parties are understood. Clear direction and well-understood procedures are needed to ensure that the environment is protected and that the needs of the economy are met. Alberta's policy and legislation will continue to incorporate new and innovative approaches. The types of resource and environmental regulation will be streamlined and simplified without reducing levels of protection. Legislation and policies will be made readily available to all parties and compliance with Alberta's regulatory requirements will be assured.

The sustainable development strategy allows Alberta to maintain a healthy environment while continuing to benefit from the wise use of natural resources. Under the sustainable approach, renewable resources continue to be managed for their future use and long term viability while non-renewable resources are managed to maximize their benefits to Albertans.

The sustainable development strategy allows Alberta to maintain a healthy environment while continuing to benefit from the wise use of natural resources.

Alberta's Process

Governments at municipal, provincial and federal levels have their own processes to provide orderly, responsible resource development. Alberta has a comprehensive and thorough review and approval process for mineral exploration and development. Table 3 on page 18 identifies the actions and roles of industry and government and the applicable legislation. The number of regulations and government accountabilities identified further illustrates the need for clear and concise guidelines on the regulatory requirements for developing a metal or diamond mine.

For mineral exploration on Crown land and private land, approval processes are handled primarily through Sustainable Resource Development (SRD). Exploration approval processes are well defined and Alberta has considerable experience with the nature and management of exploration programs. Other bodies may also require approvals, including municipalities. Figure 4 on page 19 provides an overview of the stages and steps in the current regulatory process of mineral development projects.

For a non-energy mine development, approval processes and information requirements are not as clearly defined, primarily because there have been no metal mines to approve in Alberta. Alberta Environment and the Natural Resources Conservation Board (NRCB) would approve a mine development through two distinct and different processes:

- a public interest decision by the NRCB that determines whether a mine project is in the public interest through consideration of environmental, technical, social and economic criteria;
- an environmental approval process to construct, operate and reclaim the mine, including matters related to environmental protection as well as occupational health and safety.

Public Interest Decision-Making Process

The regulatory approval process for mines can require considerable lead-time and significant technical and financial resources. In addition, projects that involve both the federal and provincial governments in the environmental regulatory process are subject to increased complexity and costs.

Alberta's past experience with public interest decisions has resulted in well developed, proven legislation for mine development in respect to the Energy Resources Conservation Act, the Oil Sands Conservation Act and the Coal Conservation Act. However, industry believes the existing mine legislation is neither clear nor appropriate for metal and diamond mines. This would require the development of legislation appropriate to these mines and clarification of the roles of the NRCB and the Alberta Energy and Utilities Board in mining regulation and inspection. Following this process, a clear, concise set of guidelines could be developed to outline the public interest decision-making process and the information requirements for an application.

The cost of meeting similar and sometimes overlapping regulatory requirements can be significant for business. Alberta can improve on the regulatory framework by addressing issues at the provincial level. However, real progress will involve streamlining of processes and requirements between municipal, provincial and federal levels, and local communities.

Strategic Directions

4. Develop an improved regulatory process that is appropriate to the mineral industry.
5. Communicate legislation and develop guidelines for exploration and mine development.
6. Continue to pursue harmonization initiatives with all levels of government and local communities.

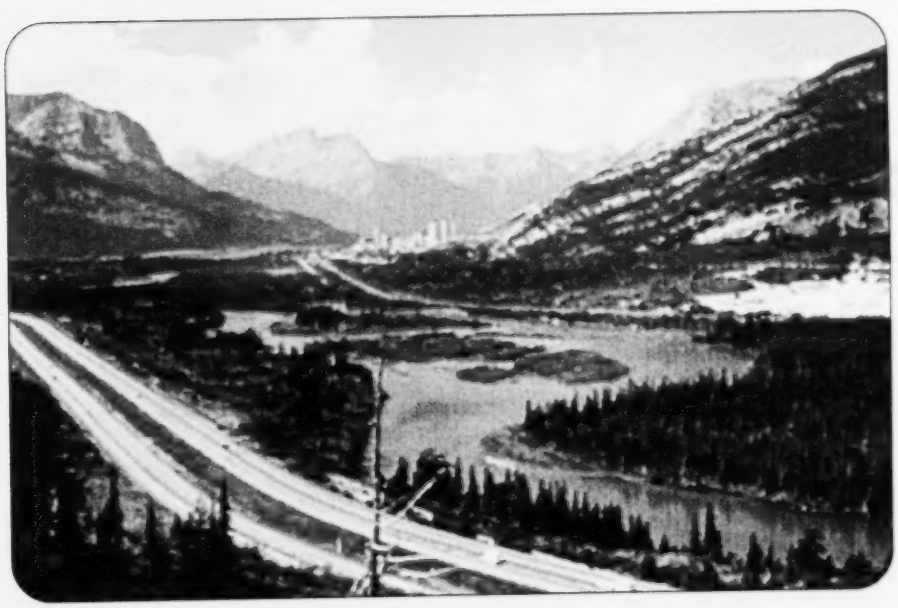
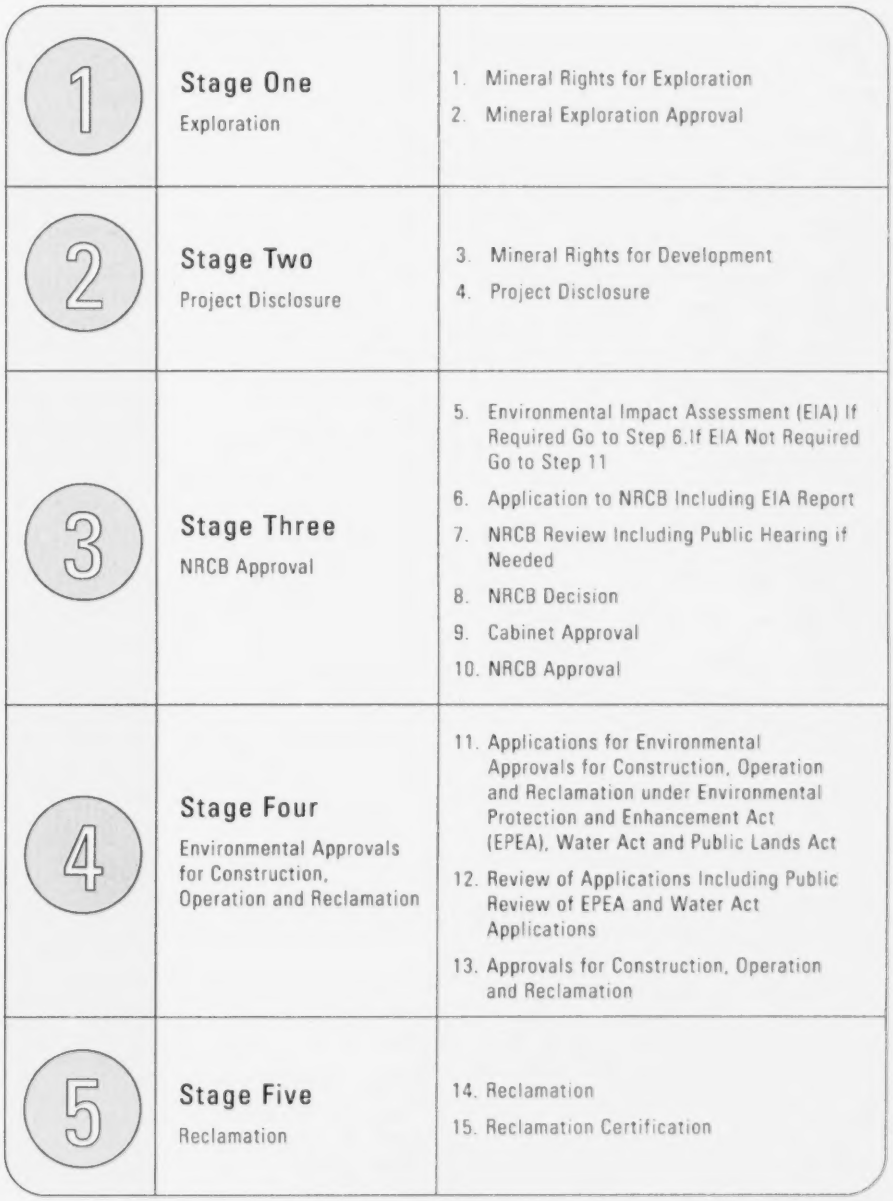


Table 3 – Current Roles and Legislation in Mineral Development

	Industry	Government	Regulation/Approval
Concept	• Develops interest in mineral opportunity • Gathers information • Assesses geological and economic potential • Invests in geoscience information	• Produces, maintains and develops records and creates maps of mineral occurrences and mineral deposits • Provides information on geological potential • Provides information on regulation, land access, approvals process • Promotes Alberta Advantage	
Exploration	• Complies with policy and regulatory framework for land access and environmental protection • Acquires mineral rights • Conducts exploration activities and reclaims land • Provides exploration assessment reports • Determines economic potential of findings	• Provides policy and regulatory framework for land access and environmental protection • Creates assessment report library	• Metallic & Industrial Minerals Regulation /AE • Metallic & Industrial Minerals Exploration Regulation/SRD
Mine Development	• Complies with regulatory framework by providing environmental impact information and protection plans • Obtains required approvals	• Provides regulatory framework for lease tenure and environmental protection • Reviews and approves application for development • Collects lease rentals	• Metallic & Industrial Minerals Regulation/AE • Environmental Protection and Enhancement Act, Public Lands Act, Water Act/AENV • Occupational Health and Safety Act/HRE • Natural Resources Conservation Board Act/NRCB • Historical Resources Act/ACD • Surface Rights Board
Production and Operation	• Extracts resources • Complies with approvals and environmental protection standards and practices • Pays royalties and taxes • Conducts ongoing reclamation activities Collects royalties	• Collects royalties • Collects taxes • Ensures compliance with approvals and environmental standards Metallic & Industrial Minerals Regulation/AE	• Metallic & Industrial Minerals Royalty Regulation/AE • Environmental Protection and Enhancement Act, Public Lands Act, Water Act/AENV • Occupational Health and Safety Act/HRE
Reclamation	• Mine closure and decommissioning • Reclaims land in accordance with reclamation standards	• Provides regulatory framework for reclamation and reclamation standards • Reviews and certifies that reclamation is complete.	• Environmental Protection and Enhancement Act/AENV

ACD Alberta Community Development
AENV Alberta Environment
AE Alberta Energy
HRE Human Resources and Employment
NRCB Natural Resources Conservation Board
SRD Sustainable Resource Development

: Fig 4 – The Current (2002) Regulatory Process for Major Mineral Development Projects in Alberta :


1
Stage One
Exploration
1. Mineral Rights for Exploration
2. Mineral Exploration Approval
2
Stage Two
Project Disclosure
3. Mineral Rights for Development
4. Project Disclosure
3
Stage Three
NRCB Approval
5. Environmental Impact Assessment (EIA) If Required Go to Step 6.If EIA Not Required Go to Step 11
6. Application to NRCB Including EIA Report
7. NRCB Review Including Public Hearing if Needed
8. NRCB Decision
9. Cabinet Approval
10. NRCB Approval
4
Stage Four
Environmental Approvals for Construction, Operation and Reclamation
11. Applications for Environmental Approvals for Construction, Operation and Reclamation under Environmental Protection and Enhancement Act (EPEA), Water Act and Public Lands Act
12. Review of Applications Including Public Review of EPEA and Water Act Applications
13. Approvals for Construction, Operation and Reclamation
5
Stage Five
Reclamation
14. Reclamation
15. Reclamation Certification

Environmental Approvals Process

The process for the actual development of a mine is complex. Although Alberta has extensive experience with large energy developments such as coal mines and oil sands mines, there is little direct experience with other types of mining operations. With the potential for new opportunities for non-energy mines, there will be a need to review and adjust regulatory processes to reflect the circumstances and demands created by new industries. Metal and diamond mines come with a new set of issues in relation to the environment, health and safety issues. Special training programs may be required for mine regulators and inspectors to ensure mining standards are met.

Strategic Directions

7. To work with stakeholders in order to develop the recommendations leading to improvements in mining regulation as it relates to non-energy minerals, including processes that address environmental protection and health and safety issues for mine development in Alberta.

8. Communicate the environmental regulatory process and develop clear, concise guidelines for mineral development.

With the potential for new opportunities for non-energy mines, there will be a need to review and adjust regulatory processes.

Taxes and Royalties

Mining is an international industry so costs of conducting business are a significant factor for the industry in determining where they should operate. Comparative studies of mining jurisdictions within Canada, such as the Fraser Institute Mining Surveys, show Alberta has a favourable fiscal regime.

Corporate income taxes and provincial royalties are fiscal instruments that affect the costs of doing business and therefore the competitiveness of industry. These costs have more impact on mine developments than on exploration, but are part of the overall cost picture that a company uses in making its investment decisions.

The level of taxation is one of the factors that affect the willingness of companies to invest and operate in a particular jurisdiction. Within Canada, Alberta's income taxes compare favourably to other provinces, as shown in Table 4 on page 21. The greatest tax burden on many companies is the federal income tax.

As owner and steward of Alberta's mineral resources, the provincial government takes a royalty share of the resource production on behalf of all Albertans. In 1993, AE consolidated various regulations for these minerals under the Metallic and Industrial Minerals Royalty Regulation of the Mines and Minerals Act. The royalty regimes are based partly on the mining method - placer or quarried and partly on mineral type – metal or salt.

Mineral production in Alberta (other than certain mineral commodities such as sand and gravel, which are governed by the Public Lands Act) currently falls under either the placer or quarriable sections of the regulation. Placer royalties are 5% of production while quarriable minerals are a flat rate per unit of production, specified according to mineral. For a metal or diamond mine, however, the royalty would be assessed on a two-tiered system, as shown in Table 4. These regimes are designed to provide a fair return to Albertans as owner of the resource and a least-cost approach to royalty assessment.

The Alberta government has a policy of conducting regular reviews of all pieces of legislation. This requires the province to assess issues affecting its resource-based and other industries, thereby ensuring Alberta's fiscal regimes continue to be appropriate, comparable and competitive. Reviews of both the mineral tenure and royalty regulations are scheduled to be completed by 2004. One aspect of the royalty regulation that will be addressed is the adequacy of the current royalty provisions to deal with potential diamond production. The recent federal royalty system for diamond production in the Northwest Territories will be a useful standard for comparison.

In the October 2000 budget, the federal government implemented an income tax credit for individual investors who invest in mineral exploration through a flow-through share agreement. The measure was implemented in response to industry lobbying, and is designed to stimulate mineral exploration in Canada. Some provinces followed the federal lead and introduced similar measures in their provincial taxation legislation, but Alberta has not followed suit.

: Table 4 - Comparison of Mining Regimes - Western Canadian Provinces :

	Alberta	British Columbia	Saskatchewan	Manitoba
Regime	Metallic & Industrial Minerals Royalty	Mining Tax	Metallic Minerals Royalty	Mining Tax
Royalty	- Before payout- 1% of revenue - After payout- 1% of revenue and 12% on revenue, minus costs	- Before payout- 2% on revenue, minus costs - After payout- 13% on profits	- 5% of profits then increased to 10% after specified production levels * announced March 26, 1999	- 20% on profits
Provincial Tax	12.5% (2003)	13.5%	17%	16%
Mining Incentive Programs	None	- Mining exploration tax credit - Prospectors Assistance	None	- Prospectors Assistance - Mineral Exploration Assistance - Mining & Exploration Tax - Speciality Minerals

Producers of privately held mineral rights (also known as freehold) also pay royalties. However, the amount of these royalties is a private agreement between the owner and the producer.

Overall, the mineral industry is a significant contributor to Canada's economy and one of the highest per capita contributors to Gross National Product/Gross Domestic Product. For Alberta to participate in these economic benefits, the province's fiscal regimes, at minimum, should be as good and as streamlined as other jurisdictions, and should not act as barriers to industry doing profitable business in Alberta.

Strategic Directions

9. To ensure Alberta's fiscal regimes are fair, competitive, stable and predictable.

: Goal 3 – Communication, Consultation, Community Development :

Alberta is well known as Canada's "energy province". Our energy sector offers a modern, sophisticated infrastructure, industry expertise, skilled workforce and a stable political environment. These add up to what is called the Alberta Advantage. These same benefits and skills form a solid base for preparing the province in an evolving mineral industry.

Our vision is achievable by starting with the knowledge and experience of our successful energy industry and improving this through ongoing communication and consultation by government with the minerals industry, Aboriginal communities, municipalities, educational institutions and other stakeholders. Opportunities are available through this strategy to take the right approach from the beginning and to build on lessons learned by Alberta's existing resource industries.

It is important to let Albertans know of the potential benefits of Alberta's minerals and a responsible mining industry. To achieve the goals within this strategic framework, all actions require the province to facilitate positive, constructive consultation processes between all the parties affected by mineral exploration and mining development.

Public education is one of the essential elements to develop a successful mineral resource industry. It is important for Albertans to know the facts and impacts of Alberta's minerals and responsible development. The public needs to be assured that a viable mineral industry can be developed in a way that protects the environment while providing economic benefits for the province.

The effects of development arising from this industry are significantly different from energy development. A metal or diamond mine will have a different imprint on the land than a coal mine or an oil well. Industry needs to consult with local communities to convey an accurate image of their mining and land reclamation activities.

The development of this sector in Alberta is still in its infancy and the potential for new mines uncertain. The province must develop initiatives for communities to learn about the potential for mineral development, and current exploration or development activities. Local communities need to be aware of their roles in exploration programs and potential mine developments. Industry, communities and governments need to discuss and develop action plans to identify and address barriers to existing and new mineral development.

Important aspects of communication, consultation and community development also support activities within the goal for industry development.

Strategic Directions

10. To act on opportunities to attract investment, create jobs and encourage economic diversification through mineral resource development.

11. To identify and encourage good neighbor policies and value-added opportunities through strategic partnerships between governments, Aboriginal and local communities, educational institutions and industry.

The "Alberta Advantage" is the unique combination of benefits that make the province an outstanding place to live, work and do business. "People, Prosperity, Preservation"

: Goal 4 – Industry Development :

Alberta has a deliberate strategy to attract investment and support industry development. The "Alberta Advantage" of a competitive, efficient fiscal and regulatory regime, strong infrastructure and skilled workforce, is the main incentive for business. Provincial, municipal and federal governments will also work with prospective companies who wish to establish operations in Alberta.

For a number of years, the provincial government has actively participated in a number of events such as conferences and trade shows promoting its mineral industry. To attract investment and developers to other mineral resource opportunities, Alberta must promote its potential for responsible exploration and development and its desirable business climate. The government can play a role in actively promoting opportunities for mineral exploration, primarily by developing and sharing geological information with prospective explorers and mining companies.

One important initiative for the mineral industry was the Mineral Development Agreement, a joint Alberta/Canada agreement operating from 1992 to 1995. This $8.4 million program enabled some initial mapping of metallic and industrial minerals, as well as geoscience and market studies. The province is consulting with the federal government regarding participation in other co-operative funding programs such as the Western Economic Partnership Agreement (WEPA). WEPA funding is one avenue for developing consultative processes with Aboriginal people and northern communities.

With respect to the diamond industry, Alberta is already receiving some spin-off economic benefits from the diamond mines in the Northwest Territories. Alberta's companies in industries such as equipment supply and transportation, and value-added processing such as diamond sorting, are a few examples of benefits to the province's economy. The development of Alberta's expertise and marketing skills will form a strong foundation should a commercial diamond mine become a reality in Alberta.

Other aspects of industry development are important, especially as exploration moves into mine development:

- research and technology development may provide a number of benefits including lower extraction costs, reduced environmental impacts, new career opportunities;
- educational institutions have an important role in developing and delivering training programs to support new and expanding skill sets in major centres as well as in local communities;
- infrastructure needs such as resource roads, water and sewer facilities are major issues for industry and local communities. Participants need to work together to identify opportunities for minimizing costs and the imprint of resource projects;

- transportation costs, often a major expense for resource-based industries, may be reduced by shared use of existing routes and infrastructure;
- financial institutions are important in securing financing; regulations have recently been enhanced and may increase confidence of investors in mineral offerings;
- security issues, especially around diamond development, are under review at the national level.

In order to facilitate mine development in Alberta, focus may be on two areas with immediate potential:

1. specific co-development opportunities exist for precious metals - titanium, vanadium and gold occur in oil sands deposits. Quantities are known to exist but industry has not yet developed this resource;

2. the number of diamond exploration programs currently underway increases the possibility that deposits may be found. In addition to developing the regulatory framework for a diamond mine, requirements for infrastructure and industry development, including value-added processes need to be considered.

Strategic Directions

12. To work with industry, education institutions and communities to identify opportunities for development of infrastructure that would facilitate mineral industry development.

13. To work with industry to facilitate economic opportunities for the co-production of non-energy minerals found in oil sands deposits.

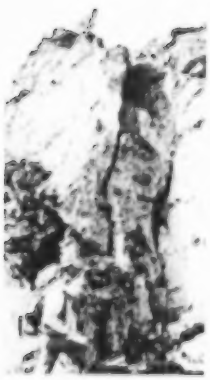
14. To work with the Alberta Sand and Gravel Association to establish a process to identify and address issues specific to sand, gravel and aggregate resource management on Public Lands.

15. To work with industry and education institutions to identify opportunities for research that would facilitate mineral industry development.

Sand and Gravel

Sand and gravel are valued commodities to all communities in Alberta. They have a well-established history of administration and management under the Public Lands Act. However, during consultations several groups raised the need to develop a strategy to ensure better use of Alberta's entire construction aggregate resources, both public and private, as well as address issues related to development. Therefore, a process to identify and address issues and a separate strategy for aggregate resources should be developed under a similar framework.

: Notes :



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